# FESHM 5032.3: TRANSPORTING GASES IN BUILDING ELEVATORS

**Revision History**

| Author | Description of Change | Revision No. & Date |
|---|---|---|
| Arakdiy Klebaner | Revision 1, Incorporated comments from experts and includes minor editorial changes.<br><br>1. Changed Division/Section to Division/Section/Center<br>2. Changed Laboratory Safety Committee to FESHCom | Revision 1<br>February 2011 |

# TABLE OF CONTENTS

# 1.0 INTRODUCTION

Transporting cryogenic dewars and room temperature gas cylinders in enclosed building elevators could be hazardous to passengers under certain conditions. This chapter defines procedures to be used for this operation at Fermilab.

# 2.0 DEFINITIONS

A building elevator is an enclosed car which has only a fan for ventilation when the door is closed.

Platform lifts with no sides or roof are not included in this chapter.

Empty dewars being transported are not included in this chapter.

# 3.0 RESPONSIBLILITIES

The Division/Section/Center head who controls the operation using the dewar is responsible for carrying out the requirements of this chapter. The Cryogenic Safety Subcommittee will serve the Division/Section/Center head as consultant in all matters concerning this chapter. The ES&H Section shall audit divisions/sections for compliance to this chapter.

# 4.0 PROCEDURE FOR CRYOGENIC DEWARS

## 4.1 Scope

This procedure is to be followed when transporting dewars not clearly empty, whether open or closed mouthed dewars, in enclosed elevators.

Open wide mouth (a.k.a. open-flask style) dewars are not to be used for transporting liquid in elevators.

A dewar is considered empty when the liquid withdrawal valve produces gas only, no liquid.

## 4.2 Inspection

Before a dewar is placed on the elevator, it is to be inspected for the following:

a. No frost, sweating, or venting of dewar contents may be present to transport a dewar.

b. The pressure building valve must be closed on any dewar transported in an elevator.

c. The pressure of any dewar to be loaded into an elevator must be less than 1/2 of the pressure setting of the dewar's main relief valve.

| Dewar Type | Typical Main Relief Setting | Max Pressure Allowed In Elevator |
|---|---|---|
| Nitrogen L160 | 20-22 psig | 10-11 psig |
| Argon L160 | 20-22 psig | 10-11 psig |
| Argon GP45 | 285 psig | 142 psig |
| Helium 500L | 10 psig | 5 psig |

### 4.3 Moving the dewar

The dewar must be moved according to the following:

a. Personnel are only permitted to ride on an elevator carrying clearly empty dewars.

b. Not more than two dewars containing liquid may be moved on an elevator at a time.

c. Transport of cryogens in the Wilson Hall elevators is prohibited except by explicit written permission from Fermilab ES&H Director. The ES&H Director approval is documented by his/her signature on a written Hazard Analysis for the transportation of a dewar(s) in the Wilson Hall elevators.

## 5.0 PROCEDURES FOR GAS CYLINDERS

### 5.1 Scope

This procedure is to be used for moving all gas cylinders in enclosed elevators.

### 5.2 Moving the cylinders

a. Gas cylinders to be moved must have the valve cap securely in place.

b. Gas cylinders must be moved on a cylinder cart. The cylinders shall be belted or chained to the cylinder cart.